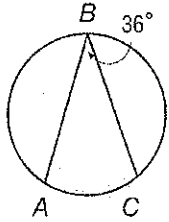


March 26, 2014

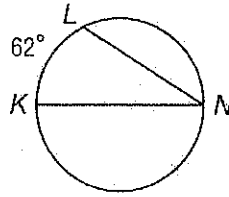
10.4 Warm-Up

1. $m\widehat{AC}$



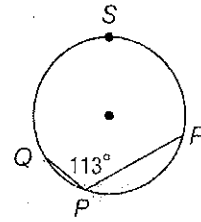
$$36 \cdot 2 = \boxed{72^\circ}$$

2. $m\angle N$



$$62 \div 2 = \boxed{31^\circ}$$

3. $m\widehat{QSR}$

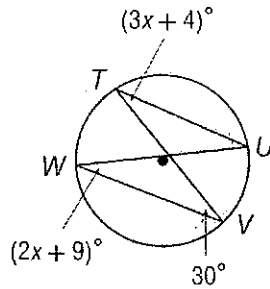


$$113 \cdot 2 = \boxed{226^\circ}$$

ALGEBRA Find each measure.

4. $m\angle U$

$$\boxed{30^\circ}$$



5. $m\angle A$

$$6y - 2 = 5y + 8$$

$$-5y \quad -5y$$

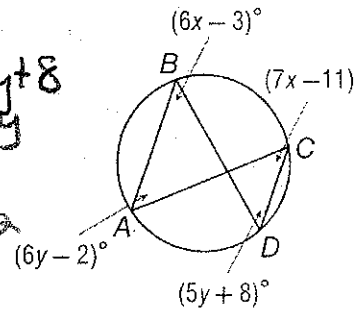
$$1y - 2 = 8$$

$$+2 \quad +2$$

$$y = 10$$

$$6(10) - 2$$

$$60 - 2 = \boxed{58^\circ}$$



10.4 Inscribed Angles

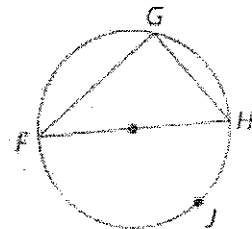
Target: Use properties of inscribed angles

to solve problems

Theorem 10.8

Words An inscribed angle of a triangle intercepts a diameter or semicircle if and only if the angle is a right angle.

Example If \widehat{FJH} is a semicircle, then $m\angle G = 90$. If $m\angle G = 90$, then \widehat{FJH} is a semicircle and \overline{FH} is a diameter.

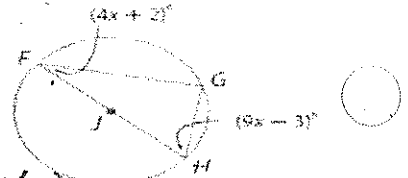


Find Angle Measures in Inscribed Triangles

ALGEBRA Find $m\angle F$.

$$4x + 2 + 90 + 9x - 3 = 180$$

$$13x + 89 = 180 \quad \frac{13x = 91}{13} \quad \boxed{x = 7}$$



$$\angle F = 4(7) + 2$$

$$\boxed{\angle F = 30^\circ}$$

Guided Practice

4. If $m\angle F = 7x + 2$ and $m\angle H = 17x - 8$, find x .

$$7x + 2 + 17x - 8 = 180 \quad 24x = 186$$

$$24x - 6 = 180 \quad \frac{24x = 186}{24} \quad \boxed{x = 7.75}$$

Theorem 10.9

Words If a quadrilateral is inscribed in a circle, then its opposite angles are supplementary.

Example If quadrilateral $KLMN$ is inscribed in $\odot A$, then $\angle L$ and $\angle N$ are supplementary and $\angle K$ and $\angle M$ are supplementary.



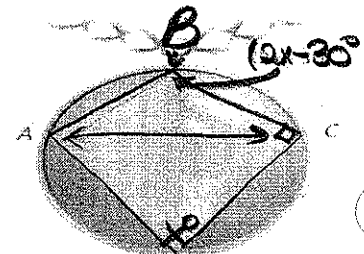
Supplementary = 180

Find Angle Measures

JEWELRY The necklace charm shown uses a quadrilateral inscribed in a circle. Find $m\angle A$ and $m\angle B$.

(A) $A + 90 = 180$
 $\quad -90 \quad -90$
 $\boxed{A = 90}$

(B) $2x - 30 + x = 180$
 $3x - 30 = 180$
 $\quad +30 \quad +30$
 $3x = 270$
 $x = 90$



$$\rightarrow 2(90) - 30$$

$$140 - 30 = \boxed{110}$$

$\angle B = 110$

Guided Practice

5. Quadrilateral $WXYZ$ is inscribed in $\odot V$. Find $m\angle X$ and $m\angle Y$.

$$60 + x = 180$$

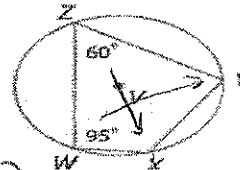
$$\quad -60 \quad -60$$

$$\boxed{x = 120}$$

$$95 + y = 180$$

$$\quad -95 \quad -95$$

$$\boxed{y = 85}$$



Why is this important?

- ultraviolet light

SCIENCE The diagram shows how light bends in a raindrop to make the colors of the rainbow.

If $m\widehat{ST} = 144$, what is $m\angle R$?

$$\frac{144}{2} = \boxed{72^\circ}$$

